Stall warning buffeting within these limits is allowable.

[Doc. No. 26269, 58 FR 42159, Aug. 6, 1993]

§ 23.253 High speed characteristics.

If a maximum operating speed V_{MO}/M_{MO} is established under § 23.1505(c), the following speed increase and recovery characteristics must be met:

(a) Operating conditions and characteristics likely to cause inadvertent speed increases (including upsets in pitch and roll) must be simulated with the airplane trimmed at any likely speed up to V_{MO}/M_{MO}. These conditions and characteristics include gust upsets, inadvertent control movements, low stick force gradients in relation to control friction, passenger movement, leveling off from climb, and descent from Mach to airspeed limit altitude.

(b) Allowing for pilot reaction time after occurrence of the effective inherent or artificial speed warning specified in § 23.1303, it must be shown that the airplane can be recovered to a normal attitude and its speed reduced to V_{MO}/M_{MO}, without—

(1) Exceeding V_D/M_D, the maximum speed shown under § 23.251, or the structural limitations; or

(2) Buffeting that would impair the pilot's ability to read the instruments or to control the airplane for recovery.

(c) There may be no control reversal about any axis at any speed up to the maximum speed shown under § 23.251. Any reversal of elevator control force or tendency of the airplane to pitch, roll, or yaw must be mild and readily controllable, using normal piloting techniques.

[Amdt. 23–7, 34 FR 13087, Aug. 13, 1969; as amended by Amdt. 23–26, 45 FR 60170, Sept. 11, 1980; Amdt. 23–45, 58 FR 42160, Aug. 6, 1993; Amdt. 23–50, 61 FR 5192, Feb. 9, 1996]

Subpart C—Structure

GENERAL

§ 23.301 Loads.

(a) Strength requirements are specified in terms of limit loads (the maximum loads to be expected in service) and ultimate loads (limit loads multiplied by prescribed factors of safety). Unless otherwise provided, prescribed loads are limit loads.

(b) Unless otherwise provided, the air, ground, and water loads must be placed in equilibrium with inertia forces, considering each item of mass in the airplane. These loads must be distributed to conservatively approximate or closely represent actual conditions. Methods used to determine load intensities and distribution on canard and tandem wing configurations must be validated by flight test measurement unless the methods used for determining those loading conditions are shown to be reliable or conservative on the configuration under consideration.

(c) If deflections under load would significantly change the distribution of external or internal loads, this redistribution must be taken into account.

(d) Simplified structural design criteria may be used if they result in design loads not less than those prescribed in §§ 23.331 through 23.521. For airplane configurations described in appendix A, § 23.1, the design criteria of appendix A of this part are an approved equivalent of §§ 23.321 through 23.459. If appendix A of this part is used, the entire appendix must be substituted for the corresponding sections of this part.

[Doc. No. 4080, 29 FR 17955, Dec. 18, 1964; 30 FR 258, Jan. 9, 1965, as amended by Amdt. 23–28, 47 FR 13315, Mar. 29, 1982; Amdt. 23–42, 56 FR 352, Jan. 3, 1991; Amdt. 23–48, 61 FR 5143, Feb. 9, 1996]

§ 23.302 Canard or tandem wing configurations.

The forward structure of a canard or tandem wing configuration must:

(a) Meet all requirements of subpart C and subpart D of this part applicable to a wing; and

(b) Meet all requirements applicable to the function performed by these surfaces.

[Amdt. 23–42, 56 FR 352, Jan. 3, 1991]

§ 23.303 Factor of safety.

Unless otherwise provided, a factor of safety of 1.5 must be used.

§ 23.305 Strength and deformation.

(a) The structure must be able to support limit loads without detrimental, permanent deformation. At